Page 7, lines 6-30:

This problem is avoided by the technique shown in FIG. 7. Again, three views are shown: a side view of the frame with the molds attached, a top view of the frame, and a detail 705 of the joint and the mold for head lug 117. Only one side of seat tube 717 and head tube 713 are shown in detail 705. As shown there, the lug is made up of 6 layers of carbon-fiber cloth. An inner layer 711, 719 of four layers of fabric is laid down around seat tube 717 and head tube 713, with layer 719 being cut long to cover the seam between layer 719 and layer 711, then ~~expanding~~ expandable syntactic ~~foam~~ film 715 is placed in the crotches of the tubes, and finally an outer layer 709 of two more layers of fabric is laid down. Then aluminum mold 707 is placed around the lug and the lug is cured. During the curing process, expandable~~ing~~ syntactic ~~foam~~ film 715 expands and forces outer layer 709 against the surface of mold 707 and inner layer 711 against the tubes. Because the impregnated outer layer is forced against the hard smooth surface of mold 707, instead of against a soft layer of silicon, the surface of the finished lug is smooth and far less sanding is required. Other advantages of this technique are that it permits the lugs to have extensive fairings, which strengthens the joint and that more pressure is generated than with a captured silicon mold. The syntactic ~~foam~~ film may of course also be used with a captured silicon mold. The curing parameters for this technique are as follows:

1. Heated at a ramp rate of 4 degrees Fahrenheit per minute to 250F
2. Cured at 250F for 1.5 hours.
3. Cooled for 2 hours

The syntactic ~~foam~~ film employed in a preferred embodiment expands at temperatures that are the same as those used to cure the carbon fiber fabric, i.e., between 200 and 250° f. The particular syntactic ~~foam~~ film employed in the preferred embodiment is Loctite SynSpand 9899, manufactured by Loctite Corporation 2850 Willow Pass Road PO Box 312 Bay Point, CA 94565-0031. This syntactic ~~foam~~ film expands up to 650%.

Page 8, lines 1-16:

The lay-up of the lugs is done as follows in a preferred embodiment:

1. Pre-wrap the tube with 4-6 layers of uni-directional preimpregnated carbon fiber. Alternate the layers to create a +/-45 orientation to the tube. (this could also be accomplished using +/-45 woven cloth) These pre-wrapped pieces are applied around the tube starting at the side, or 3 o'clock position, and wound continually in two wraps, so as to cover the seam (FIG. 9, 905).
2. The pre-wrapped carbon at the tube ends extend beyond the tube end, and are wrapped partially around the tube they join to. This forms the initial lug.
3. A layer of syntactic ~~foam~~ film is put into the crotch of the lug joints (FIG. 7, 715) (This step may be omitted when the captured silicone mold is used).